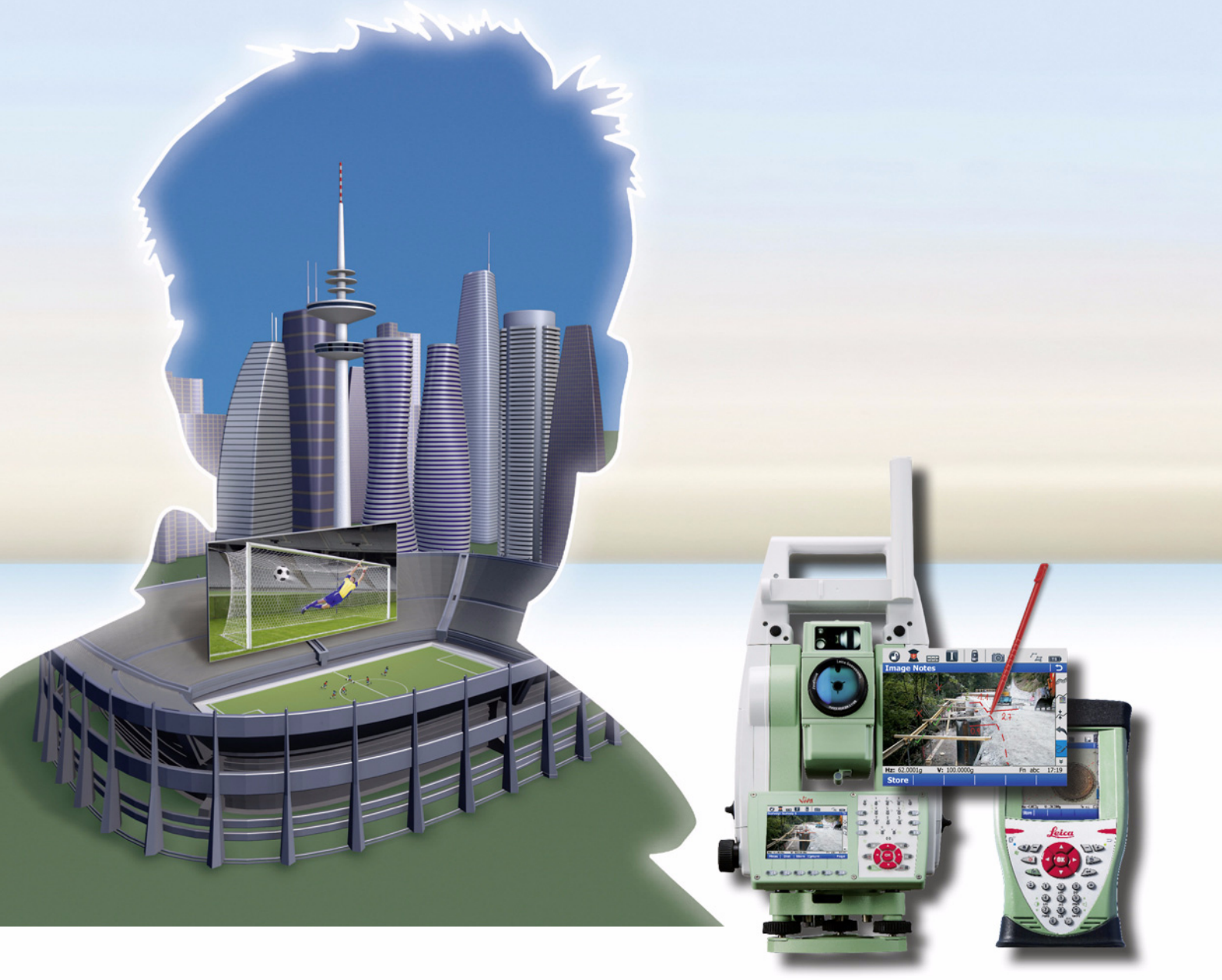
# Leica Viva TPS
# TS11/TS15
## Equipment List




- when it has to be **right**

Leica Geosystems

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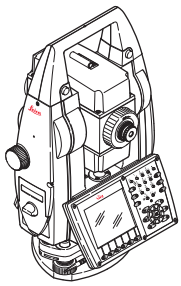
# Total Station

## 1 Total Station

### 1.1 Models



| | TS11 | | TS15 | | | | |
|---|---|---|---|---|---|---|---|
| | TS11 | TS11 I | TS15 M | TS15 A | TS15 G | TS15 P | TS15 I |
| Angle measurement | ● | ● | ● | ● | ● | ● | ● |
| Distance measurement to prism | ● | ● | ● | ● | ● | ● | ● |
| Distance measurement to any surface (reflectorless) | ● | ● | ● | ● | ● | ● | ● |
| Motorised | - | - | ● | ● | ● | ● | ● |
| Automatic Target Aiming | - | - | - | ● | ● | ● | ● |
| PowerSearch (PS) | - | - | - | - | - | ● | ● |
| Wide Angle Camera | - | ● | - | - | - | - | ● |
| RS232, USB and SD card interface | ● | ● | ● | ● | ● | ● | ● |
| Bluetooth | ● | ● | ● | ● | ● | ● | ● |
| Internal Flash Memory (1GB) | ● | ● | ● | ● | ● | ● | ● |
| Hotshoe interface for RadioHandle | - | - | ● | ● | ● | ● | ● |
| Guide Light (EGL) | ○ | ● | ● | ● | - | ● | ● |
| Laser Guide | - | - | - | - | ● | - | - |
| Arctic Option | ○ | ○ | - | - | - | - | - |
| SmartStation GS15 GNSS receiver | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| SmartStation GS12 GNSS receiver | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| CS10/CS15 (Radio) field controller | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

● Standard
○ Optional
- Not available

### 1.2 Angular Accuracies

| | | 1" Accuracy | 2" Accuracy | 3" Accuracy | 5" Accuracy |
|---|---|---|---|---|---|
| TS11 | PinPoint R30 | 780 817 | 780 815 | 780 808 | 780 807 |
| | PinPoint R400 | 780 822 | 780 821 | 780 820 | 780 818 |
| | PinPoint R1000 | 780 826 | 780 825 | 780 824 | 780 823 |
| TS11 I | PinPoint R1000 | 780 830 | 780 829 | 780 828 | 780 827 |
| TS15 M | PinPoint R400 | 780 834 | 780 833 | 780 832 | 780 831 |
| | PinPoint R1000 | 780 840 | 780 839 | 780 838 | 780 835 |
| TS15 A | PinPoint R30 | 780 844 | 780 843 | 780 842 | 780 841 |
| | PinPoint R400 | 780 849 | 780 847 | 780 846 | 780 845 |
| | PinPoint R1000 | 780 853 | 780 852 | 780 851 | 780 850 |
| TS15 G | PinPoint R30 | 780 886 | 780 885 | 780 884 | 780 883 |
| | PinPoint R400 | 780 890 | 780 889 | 780 888 | 780 887 |
| | PinPoint R1000 | 780 894 | 780 893 | 780 892 | 780 891 |
| TS15 P | PinPoint R30 | 780 861 | 780 860 | 780 859 | 780 858 |
| | PinPoint R400 | 780 865 | 780 864 | 780 863 | 780 862 |
| | PinPoint R1000 | 780 869 | 780 868 | 780 867 | 780 866 |
| TS15 I | PinPoint R30 | 780 873 | 780 872 | 780 871 | 780 870 |
| | PinPoint R400 | 780 877 | 780 876 | 780 875 | 780 874 |
| | PinPoint R1000 | 780 882 | 780 880 | 780 879 | 780 878 |

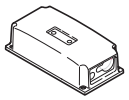
All TS11 and TS15 models are delivered with one full VGA colour touch screen, standard applications, user manual, SmartWorx Viva DVD and container GVP625.

# 2 Additional Options

## 2.1 Touch Screen, Second Keyboard

| | | |
|---|---|---|
| 779 481 | **GTS34** | 2nd keyboard with full VGA colour touch screen, for TS11/TS15 instruments, for telescope position 2, fitted. |

## 2.2 Electronic Guide Light (EGL)



| | | |
|---|---|---|
| 762 692 | **EGL5** | Electronic guide light, for TS11 instruments.<br>TS11 I instruments as well as the TS15 instruments have the EGL5 as standard (exception is the TS15 G variant). |

## 2.3 Arctic Option

| | | |
|---|---|---|
| 781 290 | | Arctic Option for TS11 instruments, modified and tested at -35° C. Includes an extended operating temperature verification statement. |

## 2.4 Producer Certificates

| | | |
|---|---|---|
| 366 358 | **GDI33** | Producer Certificate O, all main products. |
| 559 655 | **GDI35** | Producer Inspection Certificate M for theodolites and total stations: Angle. |
| 663 177 | **GDI46** | Producer Inspection Certificate M for total stations: Distance measurement to prisms. |
| 366 359 | **GDI34** | Producer Inspection Certificate M for total stations: Angle and Distance measurement to prisms. |
| 723 945 | **GDI51** | Producer Inspection Certificate M for total stations: Distance measurement to prisms and to any surfaces (reflectorless). |
| 723 946 | **GDI52** | Producer Inspection Certificate M for total stations: Angle and Distance measurement to prisms and to any surfaces (reflectorless). |

## 2.5 Calibration Certificates

| | | |
|---|---|---|
| 757 424 | **GDI58** | Calibration Certificate for electronic total stations - Swiss accredited Calibration Laboratory: Angle Hz and V. |
| 757 425 | **GDI59** | Calibration Certificate for electronic total stations - Swiss accredited Calibration Laboratory: Angle Hz, V and Distance measurement to prism. |
| 777 783 | **GDI61** | Calibration Certificate for electronic total stations - Swiss accredited Calibration Laboratory: Angle Hz, V, Distance measurement to prism and to any surface (reflectorless). |

# 3 SmartWorx Application Programs & Software Options

## 3.1 SmartWorx Viva Software for TS11/TS15

| | |
|---|---|
| 767 908 | SmartWorx Viva software and DVD. |
| 781 307 | TS SmartWorx Viva LT licence key.<br>☞ Requires 767 908 SmartWorx Viva software. |
| 781 305 | TS SmartWorx Viva licence key.<br>☞ Requires 767 908 SmartWorx Viva software. |
| 781 308 | TS SmartWorx Viva LT to TS SmartWorx Viva upgrade option. |

## 3.2 Applications Included with SmartWorx Viva

| | TS Smart-Worx Viva | TS Smart-Worx Viva LT |
|---|---|---|
| **Survey includes:** | | |
| • Survey | ● | ● |
| • Code points | ● | ● |
| • Auto points recording | ● | ○ |
| • Remote Heights | ● | - |
| • Target Offset calculations | ● | ● |
| **Setup includes:** | | |
| • Get station coordinates from GPS, from Job or enter manually | ● | ○ |
| • Orientation by known Azimuth | ● | ● |
| • Orientation by known Backsight | ● | ● |
| • Orientation & Height transfer to up to 10 target points | ● | ● |
| • Resection up to 10 target points | ● | ● |
| • Resection Helmert | ● | ● |
| • Orientation to Line | ● | ● |
| **Stakeout includes:** | | |
| • Navigate to point using various methods: North, point, to and from total station | ● | ○ |
| • Quality control - checking of coordinate differences before storing | ● | - |
| • Automatic selection of next closest point to stake | ● | - |
| • Graphical selection of point from map | ● | ● |
| • Edit heights and offset heights of points | ● | - |
| • Acoustic "reversing beep" when getting closer to point | ● | - |
| **COGO includes:** | | |
| • Inverse | ● | ● |
| • Traverse | ● | ● |
| • Intersections | ● | ● |
| • Line calculations | ● | ● |
| • Arc calculations | ● | ● |
| • Angle and curve calculator | ● | - |
| • Shift, Rotate & Scale (manual) | ● | ● |
| • Shift, Rotate & Scale (match Points) | ● | ● |
| **Determine coordinate system:** | | |
| • 1 step, 2 step, 3D Transformation | ● | ● |
| • All common projections | ● | ● |
| **Alignment Tool Kit:** | | |
| • Horizontal alignments | ● | ● |
| • Vertical alignments | ● | ● |
| • Cross sections | ● | ● |
| • Chainage equations | ● | ● |
| **Data import: ASCII, DXF** | ● | ● |
| **Data export: Custom ASCII, DXF, LandXML, FBK, RW5, RAW** | ● | ● |

● All options and functionality available

○ Limited options and functionality

- Not available

## 3.3 Additional SmartWorx Viva Software Packages

| | | TS Smart-Worx Viva | TS Smart-Worx Viva LT |
|---|---|---|---|
| 781 311 | **Worksite+ includes:**<br>• TS DTM Stakeout application (781 326)<br>• TS Reference Line application (781 322)<br>• TS Surface & Volumes application (781 327) | <br>●<br>●<br>● | <br>●<br>○<br>● |
| 781 309 | **Survey+ includes:**<br>• TS Reference Plane and Grid Scanning (781 323)<br>• TS Cross Section (781 325)<br>• TS Traverse (781 333)<br>• TS Sets of Angles (781 334)<br>• TS Hidden Point (781 332)<br>☞ Requires Art. No. 781 305 TS SmartWorx Viva. | <br>●<br>●<br>●<br>●<br>● | <br>-<br>-<br>-<br>-<br>- |

● All options and functionality available
○ Limited options and functionality
- Not available

## 3.4 Optional Applications for SmartWorx Viva

| | | TS Smart-Worx Viva | TS Smart-Worx Viva LT |
|---|---|---|---|
| 781 331 | **TS Athletics** | ● | - |
| 781 324 | **TS COGO Area Division**<br>☞ Requires COGO application. | ● | ● |
| 781 326 | **TS DTM Stakeout**<br>☞ Requires Stakeout application. | ● | ● |
| 781 336 | **TS Monitoring**<br>☞ Requires Sets of Angles application. | ● | - |
| 781 322 | **TS Reference Line**<br>☞ Requires Stakeout application. | ● | ○ |
| 781 323 | **TS Reference Plane and Grid Scanning** | ● | - |
| 781 328 | **TS RoadRunner** | ● | ○ |
| 781 330 | **TS RoadRunner Rail** | ● | - |
| 781 329 | **TS RoadRunner Tunnel** | ● | - |
| 781 343 | **TS RoadRunner Importer** | ● | ● |
| 781 334 | **TS Sets of Angles** | ● | - |
| 781 325 | **TS Cross Section** | ● | - |
| 781 327 | **TS Surface and Volumes** | ● | ● |
| 781 332 | **TS Hidden Point** | ● | - |
| 781 333 | **TS Traverse** | ● | - |

● All options and functionality available
○ Limited options and functionality
- Not available

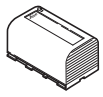
## 3.5 Optional Licences for TS Smartworx Viva

| | |
|---|---|
| 781 346 | TS Imaging Licence.<br>☞ Licence key enables extended imaging functionality on TS11 I and TS15 I instruments. |

☞ Additional TS software options for GS12 SmartStation setups can be found in the GS12 chapter 19.4.

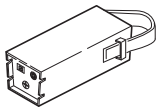
# 4 Power Supply

## 4.1 Internal Batteries



| | | |
|---|---|---|
| 733 270 | **GEB221** | Lithium-Ion battery, 7.4V/4.4Ah, rechargeable. To be used with TS11/TS15. |

## 4.2 External Batteries

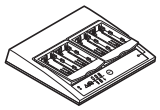


| | | |
|---|---|---|
| 727 367 | **GEB171** | External universal battery, NiMH, 12V/9Ah, rechargeable. |
| 749 279 | **GEV208** | External power supply unit. To connect TS11/TS15 instructments to mains power (220V to 12V).<br>☞ Requires a GEV52 or GEV187 cable. |

## 4.3 Battery Cables

| | | |
|---|---|---|
| 439 038 | **GEV71** | Car battery cable 4m, to connect 12V car battery. |
| 409 678 | **GEV52** | Cable, connects TS11/TS15 or DNA to external battery. |
| 734 697 | **GEV186** | Y-cable, connects TS11/TS15 to TCPS28 and external battery. |
| 734 698 | **GEV187** | Y-cable, connects TS11/TS15 to PC (9-pin RS232 serial) and external battery, 2m. |
| 707 525 | **GK1** | Lemo Canon converter 30°, for PC (Lemo to RS232) to be used with GEV186 cable. |

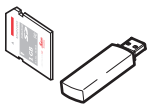
## 4.4 Battery Chargers



| | | |
|---|---|---|
| 733 271 | **GKL221** | Charger, to be used with up to two charging adapters GDI221 or GDI222, charger cable and net adapter included. |
| 733 323 | **GDI221** | Adapter for GKL221 for charging 2 Li-Ion batteries GEB241, GEB221, GEB211 or GEB212. |
| 734 389 | **GDC221** | Car adapter for the GKL221 charger. Allows the use of the GKL221 with a cigarette lighter; 12V/24V DC/DC converter. Can also be used to power CS10/CS15 field controller directly from a cigarette lighter. |
| 734 752 | **GKL211** | Charger, for Li-Ion batteries GEB221, GEB211 and GEB212, car adapter cable and net adapter included. |

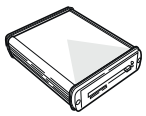
# 5 Data Storage and Data Transfer

## 5.1 Memory Devices



| | | |
|---|---|---|
| 767 856 | **MSD1000** | SD memory card 1GB for TS11/TS15 instruments and CS10/CS15 field controller. |
| 765 199 | **MS1** | USB memory stick, 1GB, for TS11/TS15 instruments and CS10/CS15 field controller, industrial grade. |

## 5.2 Card Reader



| | | |
|---|---|---|
| 767 895 | **MCR7** | Card reader for SD/CF cards. |

## 5.3 Data Transfer Cables

| | | |
|---|---|---|
| 563 625 | **GEV102** | Data transfer cable, connects TS11/TS15 to PC (9-pin RS232 serial), 2m. |
| 734 697 | **GEV186** | Y-cable, connects TS11/TS15 to TCPS28 and external battery. |
| 734 698 | **GEV187** | Y-cable, connects TS11/TS15 to PC (9-pin RS232 serial) and external battery, 2m. |
| 734 700 | **GEV189** | Data transfer cable, Lemo to USB connector (incl. USB electronics), 2.0m. Connects TS11/TS15/DNA to PC for data transfer. PC driver and user manual included on CD. |
| 756 367 | **GEV217** | Data transfer cable, connects CS10/CS15 field controller with CBC01 Lemo connector to TS11/TS15, 1.8m. |
| 764 700 | **GEV223** | Data transfer cable for connecting CS10/CS15 or TS11/TS15 to PC (USB A to USB mini connector). |
| 707 525 | **GK1** | Lemo Canon converter 30°, for PC (Lemo to RS232) to be used with GEV186 cable. |

# 6 Optical Accessories

## 6.1 Eyepiece

| | | |
|---|---|---|
| 377 802 | **FOK53** | Magnification eyepiece, additional eyepiece for increasing telescope magnification to 42x.<br>☞ Modification in a workshop necessary. |
| 308 838 | **FOK53** | Magnification eyepiece, additional eyepiece for increasing telescope magnification to 42x.<br>☞ Modification ex factory. Can only be ordered with a new instrument. |
| 734 514 | **GFZ3** | Diagonal eyepiece for telescope. |
| 376 236 | **GOK6** | Eyepiece for steep sights, with joint allowing variable sighting angle. |

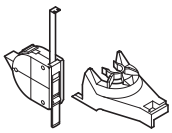
## 6.2 Autocollimation Set

| | | |
|---|---|---|
| 199 899 | **GOA2** | Autocollimation eyepiece. |
| 394 787 | **GEB62** | Plug-in lamp, with cable for autocollimation eyepiece. |
| 394 792 | **GEB63** | Battery box for autocollimation eyepiece and eyepiece lamp. |

## 6.3 Objective

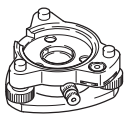
| | | |
|---|---|---|
| 743 504 | **GVO13** | Objective solar filter for TPS instruments. |

# 7 Instrument Height Meter



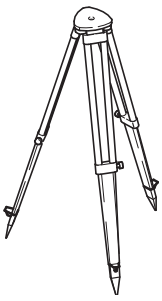
| | | |
|---|---|---|
| 667 718 | **GHM007** | Instrument height meter. |
| 722 045 | **GHT196** | Distance holder for height meter. |

# 8 Tribrachs



| | | |
|---|---|---|
| 667 304 | **GDF121** | Tribrach, without optical plummet, pale green. |
| 667 307 | **GDF122** | Tribrach, with optical plummet, pale green. |
| 748 888 | **GDF111-1** | Tribrach, without optical plummet, pale green. |
| 667 308 | **GDF112** | Tribrach, with optical plummet, pale green/red. |

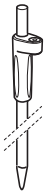
# 9 Tripods



| | | |
|---|---|---|
| 296 632 | **GST20** | Tripod, telescopic, with accessories (plumb bob, carrying strap and side clamp screws), with pouch. |
| 394 752 | **GST20-9** | Tripod, telescopic, with accessories. |
| 667 301 | **GST120-9** | Tripod, telescopic, selfclosing, with accessories. |
| 332 200 | **GST4** | Tripod-star, for setting up tripods on hard and slippery surfaces. |

# 10 Reflector Poles

## 10.1 Standard Poles

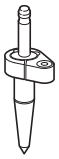


| | | |
|---|---|---|
| 385 500 | **GLS11** | Reflector pole, telescopic, with circular bubble, cm and ft graduation, extends to 2.15m. |
| 754 391 | **GLS12** | Reflector pole, telescopic to 2.00m with circular bubble, cm graduations. |
| 754 389 | **GLS12F** | Reflector pole, telescopic to 2.00m with circular bubble, ft graduations. |
| 752 292 | **GLS30** | Telescopic carbon GNSS pole with 5/8" screw. Snap locks at 1.80m and 2.00m. Includes circular bubble. |
| 766 359 | **GLS31** | Reflector carbon-fibre pole with circular bubble and twist lock. Snap-locks at 2.00m for GPS (GNSS) antennas with GAD31 adapter or GRZ122 reflector (SmartPole setup). |
| 667 309 | **GLS111** | Reflector pole, with bull's-eye bubble, cm/ft graduation, extends to 2.60m, with red/white 0.20m graduations. |
| 667 310 | **GLS112** | Reflector pole, with bull's-eye bubble, cm/ft graduation, extends to 3.65m, with red/white 0.20m graduations. |
| 555 720 | **GSR2** | Dual-strut support for GLS11/GLS11K plumbing pole. |
| 667 319 | **GSR111** | Dual-strut support for all GLS. |
| 403 428 | **GZW12** | Extension 1m long, for reflector pole GLS11 and carriers. |

## 10.2 Hidden Point Pole

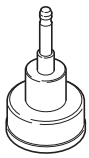
| | | |
|---|---|---|
| 742 329 | **GMP112** | Hidden Point pole extension for GMP111 (mini prism pole set). Includes mini prism with holder and 30cm adapter pole. |
| 744 495 | **GMP112-0** | Hidden Point pole extension for GMP111-0. Includes mini prism and 30cm adapter pole. |

## 10.3 Mini Pole



| | | |
|---|---|---|
| 403 427 | **GLS14** | Mini reflector pole, (prism/target 20cm over point), with circular bubble. |

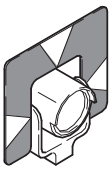
# 11 Reflector Carriers



| | | |
|---|---|---|
| 667 313 | **GRT144** | Carrier with stub, pale green. |
| 667 316 | **SNLL121** | Precision carrier, with plate level and zenith-nadir laser plummet. |
| 428 340 | **GZR3** | Precision carrier, with plate level and optical plummet. |
| 725 566 | **GZR103** | Carrier, with plate level and optical plummet, for reflectors and GPS antenna, pale green. |

# 12 Reflectors

## 12.1 Circular Reflectors



| | | |
|---|---|---|
| 362 830 | **GPR1** | Circular prism, in black housing. |
| 641 618 | **GPR111** | Circular prism, with holder and target plate. |
| 753 492 | **GPR113** | Circular prism, with red holder. |
| 641 617 | **GPR121** | Circular prism, with metal holder and target plate. |
| 362 820 | **GPH1** | Single-prism holder. |
| 400 080 | **GPH3** | Three-prism holder. |
| 362 823 | **GZT4** | Target plate, for GPH1. |

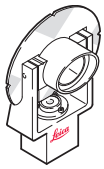
## 12.2 360° Reflectors

| | | |
|---|---|---|
| 639 985 | **GRZ4** | 360° reflector. |
| 644 327 | **GRZ101** | 360° mini prism with 1/4" thread fitting. Not supported by PowerSearch. |
| 754 384 | **GRZ122** | 360° reflector with 5/8" thread adapter for mounting of GPS antenna. |
| 742 006 | **GAD103** | Adapter for attaching GRZ101 to all poles with Leica Geosystems stub. |

## 12.3 Precision Reflectors

| | | |
|---|---|---|
| 555 631 | **GPH1P** | Single-prism precision reflector. |

## 12.4 Mini Reflectors

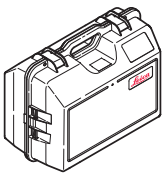


| | | |
|---|---|---|
| 641 662 | **GMP101** | Mini prism, incl. bubble, target plate and spike, in bag, also suitable for GLS11 and GRT44 (same height as GPH1, additive constant +17.5mm). |
| 641 762 | **GMP104** | Mini prism, with L-bar, for fixed installations. |
| 641 615 | **GMP111** | Mini prism, incl. bubble, with GLS115 pole set. |
| 642 534 | **GMP111-0** | Mini prism 0-constant, incl. bubble, with GLS115 pole set. |
| 743 503 | **GAD105** | Adapter for GMP111 to all poles with Leica Geosystems stub. |

## 12.5 Reflector Tapes

| | | |
|---|---|---|
| 763 532 | **GZM29** | Reflective tape, 20x20mm for short range, pack of 20 pieces. |
| 763 533 | **GZM30** | Reflective tape, 40x40mm for medium range, pack of 20 pieces. |
| 763 534 | **GZM31** | Reflective tape, 60x60mm for long range, pack of 20 pieces. |

# 13 Additional Containers



| | | |
|---|---|---|
| 767 828 | **GVP642** | Hard container for CS10/CS15 field controller, GS15 SmartAntenna and corresponding SmartStation SmartPole accessories. |
| 744 501 | **GDZ66** | Backstraps (2) for GVP640 and GVP642 hard container. |
| 667 451 | **GVP609** | Container for 2 circular prisms GPR111/121, 2 carriers/laser plummets and 2 tribrachs. |
| 727 589 | **GVP102** | Soft bag with shoulder strap, for prism station, consist of tribrach, prism carrier or laser plummet and prism. |
| 782 384 | **GVP656** | Viva hard container for GS12 SmartAntenna, CS10/CS15 field controller, SmartPole and SmartStation accessories. |

# Remote Control

## 14 Remote Control

### 14.1 Remote Control Sets

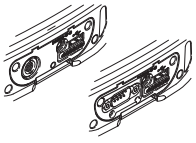
| | | |
|---|---|---|
| **Advanced Remote Control Sets** | | |
| 6003611 | | Advanced CS10 Set for TS15 instruments, consisting of CS10 radio field controller with integrated TPS radio modem, CBC01 Lemo connector modul and CS SmartWorx Viva licence key (767 909), GHT62 pole holder with GHT63 pole clamp, RH15 RadioHandle, 2 GEB212 batteries and container. |
| 6003612 | | Advanced CS15 Set for TS15 instruments, consisting of CS15 radio field controller with integrated TPS radio modem, CBC01 Lemo connector modul and CS SmartWorx Viva licence key (767 909), GHT62 pole holder with GHT63 pole clamp, RH15 RadioHandle, 2 GEB212 batteries and container. |
| **Professional Remote Control Set** | | |
| 6003841 | | Professional CS15 Set for TS15 instruments, consisting of CS15 UMTS radio field controller with intrgrated TPS radio modem, CBC01 lemo connector modul and CS SmartWorx Viva licence key (767 909), GHT62 pole holder with GHT63 pole clamp, RH15 RadioHandle, 2 GEB212 batteries and container. |

### 14.2 CS10/CS15 Radio Field Controller

| | | |
|---|---|---|
| 767 866 | **CS10 Radio Field Controller** | **CS10 Radio Field Controller.**<br>Ruggedized WinCE field controller with full VGA colour touch screen, 1GB NAND flash memory, 512MB SDRAM, CF/SD card slot and 2MP camera.<br>Includes Bluetooth, internal WLAN module, internal TPS radio module, numeric keypad, stylus.<br>Available with either Lemo connector (CBC01) or DSUB connector module (CBC02). |

| | | |
|---|---|---|
| 767 871 | **CS15 Radio Field Controller** | **CS15 Radio Field Controller.**<br>Ruggedized WinCE field controller with full VGA colour touch screen, 1GB NAND flash memory, 512MB SDRAM, CF/SD card slot and 2MP camera.<br>Includes Bluetooth, internal WLAN module, internal TPS radio module, QWERTY keypad, stylus.<br>Available with either Lemo connector (CBC01) or DSUB connector module (CBC02). |
| 781 600 | **CS15 UMTS Radio Field Controller** | **CS15 UMTS Radio Field Controller.**<br>Ruggedized WinCE UMTS field controller with full VGA colour touch screen, 1GB NAND flash memory, 512 MB SDRAM, CF/SD card slot and 2MP camera.<br>Includes UMTS module, Bluetooth, interal WLAN module, internal TPS radio module, QUERTY keypad and stylus.<br>Available with either Lemo connector (CBC01) or DSUB connector module (CBC02). |
| **Extra pen** | | |
| 781 521 | **GDZ69** | Extra pen with screw driver for CS10 and CS15 field controller. |
| **Anti-glare display foils** | | |
| 767 907 | **SPF01** | Anti-glare display foils for CS10 and CS15 field controller. |

## 15 Connector Modules for CS10/CS15



| | | |
|---|---|---|
| 767 874 | **CBC01** | Lemo connector module with power jack, Lemo (USB and Serial) and USB A host for CS10 and CS15 field controller.<br>☞ Can only be ordered with CS10/CS15 field controller. |
| 767 875 | **CBC02** | DSUB connector module with power jack, DSUB 9-pin, USB A host and USB mini AB for CS10 and CS15 field controller.<br>☞ Can only be ordered with CS10/CS15 field controller. |

# 16 SmartWorx Viva Software and Application Programs

## 16.1 SmartWorx Viva Software for CS10/CS15

| | |
|---|---|
| 767 908 | SmartWorx Viva software and DVD. |
| 767 910 | CS SmartWorx Viva LT licence key.<br>☞ Requires 767 908 SmartWorx Viva software. |
| 767 909 | CS SmartWorx Viva licence key.<br>☞ Requires 767 908 SmartWorx Viva software. |
| 767 911 | CS SmartWorx Viva LT to CS SmartWorx Viva upgrade option. |

## 16.2 Applications Included with SmartWorx Viva

| | CS Smart-Worx Viva | CS Smart-Worx Viva LT |
|---|---|---|
| **Survey includes:** | | |
| • Survey | ● | ● |
| • Code points | ● | ● |
| • Auto points recording | ● | ○ |
| • Remote Heights | ● | - |
| • Target Offset calculations | ● | ● |
| **Setup includes:** | | |
| • Get station coordinates from GPS, from Job or enter manually | ● | ○ |
| • Orientation by known Azimuth | ● | ● |
| • Orientation by known Backsight | ● | ● |
| • Orientation & Height transfer to up to 10 target points | ● | ● |
| • Resection up to 10 target points | ● | ● |
| • Resection Helmert | ● | ● |
| • Orientation to Line | ● | ● |
| **Stakeout includes:** | | |
| • Navigate to point using various methods: North, point, to and from total station | ● | ○ |
| • Quality control - checking of coordinate differences before storing | ● | - |
| • Automatic selection of next closest point to stake | ● | - |
| • Graphical selection of point from map | ● | ● |
| • Edit heights and offset heights of points | ● | - |
| • Acoustic "reversing beep" when getting closer to point | ● | - |
| **COGO includes:** | | |
| • Inverse | ● | ● |
| • Traverse | ● | ● |
| • Intersections | ● | ● |
| • Line calculations | ● | ● |
| • Arc calculations | ● | ● |
| • Angle and curve calculator | ● | - |
| • Shift, Rotate & Scale (manual) | ● | ● |
| • Shift, Rotate & Scale (match Points) | ● | ● |
| **Determine coordinate system:** | | |
| • 1 step, 2 step, 3D Transformation | ● | ● |
| • All common projections | ● | ● |
| **Alignment Tool Kit:** | | |
| • Horizontal alignments | ● | ● |
| • Vertical alignments | ● | ● |
| • Cross sections | ● | ● |
| • Chainage equations | ● | ● |
| **Data import: ASCII, DXF** | ● | ● |
| **Data export: Custom ASCII, DXF, LandXML, FBK, RW5, RAW** | ● | ● |

● All options and functionality available

○ Limited options and functionality

- Not available

## 16.3 Additional SmartWorx Viva Software Packages

| | | CS Smart-Worx Viva | CS Smart-Worx Viva LT |
|---|---|---|---|
| 767 913 | **Worksite+ includes:**<br>• CS DTM Stakeout application (767 919)<br>• CS Reference Line application (767 915)<br>• CS Surface & Volumes application (767 920) | <br>●<br>●<br>● | <br>●<br>○<br>● |
| 767 912 | **Survey+ includes:**<br>• CS Reference Plane and Grid Scanning (767 916)<br>• CS Cross Section (767 918)<br>• CS Traverse (767 927)<br>• CS Sets of Angles (767 929)<br>• CS Hidden Point (767 926)<br>☞ Requires Art. No. 767 909 CS SmartWorx Viva. | <br>●<br>●<br>●<br>●<br>● | <br>-<br>-<br>-<br>-<br>- |

● All options and functionality available
○ Limited options and functionality
- Not available

## 16.4 Optional Applications for SmartWorx Viva

| | | CS Smart-Worx Viva | CS Smart-Worx Viva LT |
|---|---|---|---|
| 767 917 | **CS COGO Area Division**<br>☞ Requires COGO application. | ● | ● |
| 767 919 | **CS DTM Stakeout**<br>☞ Requires Stakeout application. | ● | ● |
| 767 931 | **CS Monitoring**<br>☞ Requires Sets of Angles application. | ● | - |
| 767 915 | **CS Reference Line**<br>☞ Requires Stakeout application. | ● | ○ |
| 767 916 | **CS Reference Plane and Grid Scanning** | ● | - |
| 767 921 | **CS RoadRunner** | ● | ○ |
| 767 923 | **CS RoadRunner Rail** | ● | - |
| 767 922 | **CS RoadRunner Tunnel** | ● | - |
| 777 645 | **CS RoadRunner Importer** | ● | ● |
| 767 929 | **CS Sets of Angles** | ● | - |
| 767 918 | **CS Cross Section** | ● | - |
| 767 920 | **CS Surface and Volumes** | ● | ● |
| 767 926 | **CS TPS Hidden Point** | ● | - |
| 767 927 | **CS Traverse** | ● | - |

● All options and functionality available
○ Limited options and functionality
- Not available

## 16.5 Optional Licences for CS10/CS15 Controller

| | |
|---|---|
| 781 486 | CS Imaging Licence.<br>Licence key allows to link a TS image to a CS database object. |
| 779 474 | Topcon total station control licence. |
| 782 287 | Nikon totalstation control licence. |
| 782 286 | SOKKIA totalstation control licence. |

☞ Additional CS software options for GS12 SmartPole setups can ge found in the GS12 chapter 19.3.

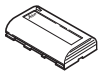
## 16.6 SmartWorx Viva PC Software

| | |
|---|---|
| 773 894 | SmartWorx Viva PC Software.<br>Licence Key to run the SmartWorx Viva software on a PC. |

# Accessories for Remote Control

## 17 Accessories for Remote Control

### 17.1 Internal Batteries

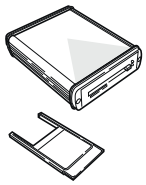


| | | |
|---|---|---|
| 733 269 | **GEB211** | Lithium-Ion battery, 7.4V/2.2Ah, rechargeable. To be used with CS10/CS15 field controller and GS09, GS12 or GS15 receivers. |
| 772 806 | **GEB212** | Lithium-Ion battery, 7.4V/2.6Ah, rechargeable. To be used with CS10/CS15 field controller and GS09, GS12 or GS15 receivers. |

### 17.2 Memory Devices

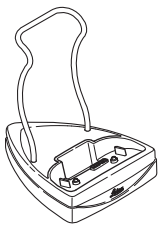
| | | |
|---|---|---|
| 767 856 | **MSD1000** | SD memory card 1GB for TS11/TS15 instruments and CS10/CS15 field controller. |
| 733 257 | **MCF256** | CompactFlash card 256MB for CS10/CS15 field controller. |
| 745 995 | **MCF1000** | CompactFlash card 1GB for CS10/CS15 field controller. |
| 765 199 | **MS1** | USB memory stick, 1GB, for TS11/TS15 instruments and CS10/CS15 field controller, industrial grade. |

### 17.3 Card Reader & Adapter



| | | |
|---|---|---|
| 767 895 | **MCR7** | Card reader for SD/CF cards. |
| 733 258 | **MCFAD1** | CompactFlash PC card adapter. |

### 17.4 Docking Station

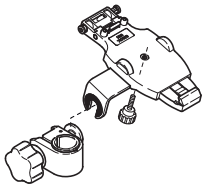


| | | |
|---|---|---|
| 767 906 | **CCS01** | Docking station for CS10 and CS15 field controller for charging and data transfer to PC, includes:<br>GEV223 (USB A to USB mini data transfer cable). |

### 17.5 Additional Power Accessories

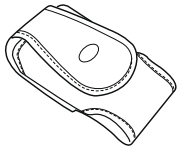
| | | |
|---|---|---|
| 767 900 | **GEV235** | 1.5m power cable. Allows CS10/CS15 controller to be externally powered via the power jack. Usable in the EU. |
| 773 753 | **GEV235-1** | 1.5m power cable. Allows CS10/CS15 controller to be externally powered via the power jack. Usable in the US. |
| 773 754 | **GEV235-2** | 1.5m power cable. Allows CS10/CS15 controller to be externally powered via the power jack. Usable in Japan. |
| 773 755 | **GEV235-3** | 1.5m power cable. Allows CS10/CS15 controller to be externally powered via the power jack. Usable in the UK. |
| 773 756 | **GEV235-4** | 1.5m power cable. Allows CS10/CS15 controller to be externally powered via the power jack. Usable in Australia. |
| 734 389 | **GDC221** | Car adapter for the GKL221 charger. Allows the use of the GKL221 with a cigarette lighter; 12V/24V DC/DC converter. Can also be used to power CS10/CS15 field controller directly from a cigarette lighter. |

## 17.6 Pole Accessories for CS10/CS15 Field Controller



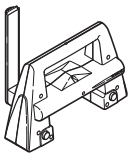
| | | |
|---|---|---|
| 767 879 | **GHT62** | Pole holder base plate for CS10 and CS15 field controller. |
| 767 880 | **GHT63** | Clamp arrangement for attaching the GHT62 to all poles. |

## 17.7 Softbags and Hand Strap for CS10/CS15 Field Controller



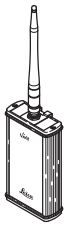
| | | |
|---|---|---|
| **Soft bags** | | |
| 767 904 | **GVP643** | Soft bag for CS10 field controller for transportation and protection against dirt. Including belt loop. |
| 767 905 | **GVP644** | Soft bag for CS15 field controller for transportation and protection against dirt. Including belt loop. |
| **Hand strap** | | |
| 767 877 | **GHT61** | Hand strap for CS10/CS15 field controller with utility hook for attaching to belt or tripod. |

## 17.8 RH15 RadioHandle



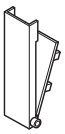
| | | |
|---|---|---|
| 772 300 | **RH15** | Radio Handle with integrated radio modem and radio antenna. Used as radio modem for TS15 instruments together with CS10/CS15 field controller (frequency range 2402 - 2452MHz). |

## 17.9 TCPS28 Modems



| | | |
|---|---|---|
| 772 301 | **TCPS28B** | Radio modem (base) with antenna, user manual. Used as radio modem for TS15 instruments to communicate with CS10/CS15 field controller (frequency range 2402 - 2452MHz). |
| 772 302 | **TCPS28R** | Radio modem (remote) with antenna, user manual. Used as external radio to establish radio connection with TCSP28B (frequency range 2402 - 2452MHz). |

## 17.10 TCPS28 Accessories



| | | |
|---|---|---|
| 734 163 | **GHT43** | Adapter for mounting TCPS28 radio module on GST20/GST120 tripod. |

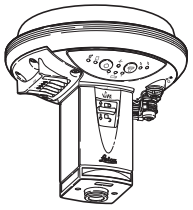
## 17.11 Cables for CS10/CS15 Field Controller and TCPS28 Radio Modems

| | | |
|---|---|---|
| **Cable adapters** | | |
| 734 389 | **GDC221** | Car lighter to power jack for CS10/CS15 field controller. |
| 707 525 | **GK1** | Lemo Canon converter 30°, for PC (Lemo to RS232) to be used with GEV186 cable. |
| **Data transfer cables** | | |
| 764 700 | **GEV223** | Data transfer cable for connecting CS10/CS15 or TS11/TS15 to PC (USB A to USB mini connector). |
| 767 899 | **GEV234** | Cable to connect CS10/CS15 field controller to GS10/GS15 SmartAntenna for data transfer. USB A to Lemo connector (for GS15 SmartStation setup). |
| 772 807 | **GEV237** | Cable to connect CS10/CS15 field controller to GS15 SmartAntenna for data transfer. Lemo to Lemo connector (for GS15 SmartStation setup). |
| **Power cables** | | |
| 758 469 | **GEV219** | Power cable, connects CS10/CS15 (with Lemo CBC01 connector module) to external battery. |
| **Y - power cables** | | |
| 734 697 | **GEV186** | Y-cable, connects TS11/TS15 to TCPS28 and external battery. |

# SmartPole & SmartStation

## 18 SmartStation & SmartPole Setup using GS15 GNSS Receiver

### 18.1 GS15 GNSS Receiver

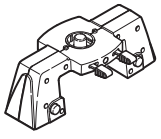


| | | |
|---|---|---|
| 767 789 | **GS15** | **Leica GS15 Basic SmartAntenna** |
| 771 502 | **GS15** | **Leica GS15 Limited SmartAntenna** |
| 771 503 | **GS15** | **Leica GS15 Performance SmartAntenna** |
| 771 504 | **GS15** | **Leica GS15 Professional SmartAntenna** |

| | Leica GS15 Basic | Leica GS15 Limited | Leica GS15 Performance | Leica GS15 Professional |
|---|---|---|---|---|
| **Supported GNSS Systems** | | | | |
| GPS L2 | ● | ● | ● | ● |
| GPS L5 | ○ | ○ | ○ | ● |
| GLONASS | ○ | ○ | ○ | ● |
| Galileo | ○ | ○ | ○ | ● |
| **RTK performance** | | | | |
| DGPS/RTCM | ○ | ● | ● | ● |
| RTK up to 5km | ○ | ● | ● | ● |
| RTK unlimited | ○ | ○ | ● | ● |
| Network RTK | ○ | ○ | ● | ● |
| Leica Lite RTK | ○ | ○ | ○ | ● |
| **Position update & data recording** | | | | |
| 5 Hz positioning | ○ | ● | ● | ● |
| 20 Hz positioning | ○ | ○ | ● | ● |
| Raw data logging | ○ | ● | ● | ● |
| RINEX logging | ○ | ○ | ○ | ● |
| NMEA out | ○ | ○ | ○ | ● |
| **Additional features** | | | | |
| RTK Reference Station functionality | ○ | ○ | ● | ● |

● Standard
○ Optional

### 18.2 SmartAntenna Adapter

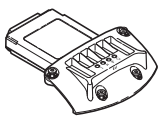


| | | |
|---|---|---|
| 767 802 | **GAD110** | SmartAntenna adapter to mount GS15 SmartAntenna.<br>BT module to connect the TS to the GS15 GNSS receiver is standard on all TS11/TS15 instruments. |

## 18.3 Additional GS15 Receiver Options

| | | |
|---|---|---|
| **GNSS Software options** | | |
| 767 804 | **LOP1** | GPS L5 option, enables GPS L5 tracking on a GS10 or GS15 receiver. |
| 767 805 | **LOP2** | GLONASS option, enables GLONASS tracking on a GS10 or GS15 receiver. |
| 767 806 | **LOP3** | Galileo option, enables Galileo tracking on GS10 or GS15 receiver. |
| **Position update and data recording options** | | |
| 767 807 | **LOP4** | 5Hz option, enables to compute positions with an update rate up to 5Hz. |
| 767 808 | **LOP5** | 20Hz option, enables to compute positions with an update rate up to 20Hz. |
| 767 809 | **LOP6** | Upgrade option from 5Hz to 20Hz. (LOP4 to LOP5) |
| 767 810 | **LOP7** | Raw data option, allows logging of GNSS raw data on GS10 or GS15 receiver or on a CS10/CS15 field controller. |
| 767 811 | **LOP8** | RINEX option, allows logging of RINEX data on GS10 or GS15 receiver. |
| **RTK performance options** | | |
| 767 812 | **LOP9** | 5km RTK option, enables RTK positions to be computed up to a distance of 5km from a single base station. |
| 767 813 | **LOP10** | Unlimited RTK option, enables RTK positions to be computed from a single base station with no limit of distance. |
| 767 814 | **LOP11** | Upgrade from 5km RTK to unlimited RTK. (LOP9 to LOP10) |
| 767 815 | **LOP12** | Unlimited RTK and Network RTK, enables RTK position to be computed from a single base station and within a RTK network. |
| 767 817 | **LOP14** | Upgrade option for GS10 or GS15 receivers from RTK unlimited only to RTK unlimited including RTK Network. (LOP10 to LOP12) |
| 771 971 | **LOP20** | Leica Lite option, to receive GS09 RTK data on the GS10, GS15 receivers. |
| **Other options** | | |
| 767 816 | **LOP13** | RTK Reference station option, allows a GS10 or GS15 receiver to transmit RTK data. |

## 18.4 RTK Modems



| | | |
|---|---|---|
| **Satelline radio modules** | | |
| 767 819 | **SLR1** | Satelline M3 T1 403-470MHz TXO radio. RTK transmitting only UHF radio module to be easily plugged into the GS15 GNSS receiver. |
| 767 820 | **SLR2** | Satelline M3 R1 403-470MHz RXO radio. RTK receive only UHF radio module to be easily plugged into the GS15 GNSS receiver. |
| 781 646 | **SLR5** | Satelline M3 TR1 403-470Mhz RX/TX radio. RTK receive and transmit UHF radio module to be easily plugged into the GS15 GNSS receiver. |
| **Pacific Crest radio modules** | | |
| 767 821 | **SLR3-1** | Pacific Crest ADL RX/TX radio 390-430Mhz. RTK receive and transmit UHF radio module to be easily plugged into the GS15 GNSS receiver. |
| 767 822 | **SLR3-2** | Pacific Crest ADL RX/TX radio 430-470Mhz. RTK receive and transmit UHF radio module to be easily plugged into the GS15 GNSS receiver. |
| 6002544 | | Configuration tool kit for programming Satelline and Pacific Crest SLR RTK radio modules; includes programming cable GEV231 and configuration software CD ROM.<br>☞ SLR radios will be delivered pre-configured according to country-specific radio regulations. In countries where radios need to be configured locally, the configuration tool kit is to be used. |

☞ External high power radios such as Satelline Epic Pro (10, 35W), Pacific Crest (2, 35W) or GFU radios can be used for RTK communication instead of the slot-in RTK modems.

| | | |
|---|---|---|
| **Mobile phone modules** | | |
| 767 823 | **SLG1** | 5-Band (850/900/1800/1900/2100MHz) Telit GSM/GPRS/UMTS module. Provides full flexibility due to 5-band technology and is globally compatible to all GSM, GPRS, EDGE and UMTS network providers. Can be easily plugged into the GS15 GNSS receiver. |
| 774 689 | **SLG2** | 4-Band (850/900/1800/1900MHz) Siemens MC75i GSM/GPRS module. Universal 4-band technology supports GSM, GPRS, and EDGE network providers. Can be easily plugged into the GS15 GNSS receiver. |

| | | |
|---|---|---|
| 767 824 | **SLC1** | Dual band Telit CDMA 1xRTT module for US. Supports Sprint (US) network provider and can be easily plugged into the GS15 GNSS receiver. |
| 767 825 | **SLC2** | Dual band Telit CDMA 1xRTT module for US. Supports Verizon (US) network provider and can be easily plugged into the GS15 GNSS receiver. |

## 18.5 External RTK Antennas

The GS15 receiver is equipped with internal GSM/GPRS/UMTS antenna and internal UHF antenna as standard. In areas of poor GSM/GPRS/UMTS or UHF reception, the use of an external RTK antenna may improve reception.

**RTK antenna arm**

| | | |
|---|---|---|
| 767 790 | **GAD108** | Arm to mount external UHF/GSM antenna to GS15 SmartAntenna, useful in areas of poor radio or GSM network receiption. |

**Gainflex radio antennas**

| | | |
|---|---|---|
| 639 964 | **GAT1** | Gainflex radio antenna (frequence range 400-435MHz). |
| 667 243 | **GAT2** | Gainflex radio antenna (frequence range 435-470MHz). |

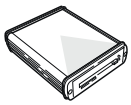
**Antennas for mobiles phones**

| | | |
|---|---|---|
| 782 500 | **GAT18** | Multiband GSM/UMTS Antenna for 850/1900MHz, for 900/1800MHz and for 2100MHz mobile networks. |

## 18.6 Memory Devices

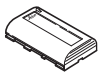
| | | |
|---|---|---|
| 767 856 | **MSD1000** | SD memory card 1GB for CS10 and CS15 field controller. |

## 18.7 Card Reader



| | | |
|---|---|---|
| 767 895 | **MCR7** | Card reader for SD/CF cards. |

## 18.8 Power Supply



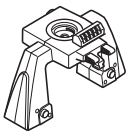
| | | |
|---|---|---|
| 733 269 | **GEB211** | Lithium-Ion battery, 7.4V/2.2Ah, rechargeable. To be used with CS10/CS15 field controller and GS09, GS12 or GS15 receivers. |
| 772 806 | **GEB212** | Lithium-Ion battery, 7.4V/2.6Ah, rechargeable. To be used with CS10/CS15 field controller and GS09, GS12 or GS15 receivers. |

# 19 SmartStation & Smartpole Setup using a GS12 GNSS Receiver

## 19.1 GS12 GNSS Receiver

| | | |
|---|---|---|
| 782 288 | **GS12** | GS12 GNSS receiver, Geodetic 120 channels GNSS receiver, includes:<br>GPS L1+L2, 1 Hz position rate, easily upgradeable with TS/GS12 or CS/GS12 options (e.g. Glonass, Gallileo, GPS L5, Network Licence, Raw data logging). |

## 19.2 SmartAntenna Adapter



| | | |
|---|---|---|
| 741 965 | **GAD104** | GS12 SmartAntenna Adapter. Required to attach a GS12 GNSS Antenna onto a TS11/TS15 Instrument. |

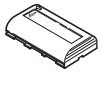
## 19.3 Additional CS Options for GS12 GNSS SmartPole Setup

| | | |
|---|---|---|
| 782 278 | **GSW949** | **CS/GS12 GLONASS License.**<br>License key for the CS10/CS15 field controller which enables use of GLONASS with a GS12 receiver. |
| 782 279 | **GSW950** | **CS/GS12 GPS L5 License.**<br>License key for the CS10/CS15 field controller which enables use of GPS L5 with a GS12 receiver. |
| 782 280 | **GSW951** | **CS/GS12 GPS Galileo License.**<br>License key for the CS10/CS15 field controller which enables use of Galileo with a GS12 receiver. |
| 782 281 | **GSW952** | **CS/GS12 5Hz License.**<br>License key for the CS10/CS15 field controllers which enables to compute 5Hz positions with a GS12 receiver. |
| 782 282 | **GSW953** | **CS/GS12 Raw Data Logging License.**<br>License key for the CS10/CS15 field controllers which enables logging of Leica MDB raw data with a GS12 receiver. |
| 782 283 | **GSW954** | **CS/GS12 RINEX Logging License.**<br>License key for the CS10/CS15 field controllers which enables logging of RINEX raw data with a GS12 receiver. |
| 782 284 | **GSW955** | **CS/GS12 Network RTK Network License.**<br>License key for the CS10/CS15 field controllers which eanbles the GS12 receiver to work within an RTK network. Includes unlimited RTK baseline. |
| 782 285 | **GSW956** | **CS/GS12 Leica Lite RTK License.**<br>License key for the CS10/CS15 field controllers which enables the GS12 antenna to receive Leica Lite RTK messages. |

## 19.4 Additional TS Options for GS12 SmartStation Setup

| | | |
|---|---|---|
| 782 615 | **GSW964** | **TS/GS12 GLONASS License.**<br>License key for the TS11/TS15 total stations which enables use of GLONASS with a GS12 receiver. |
| 782 617 | **GSW965** | **TS/GS12 GPS L5 License.**<br>License key for the TS11/TS15 total stations which enables use of GPS L5 with a GS12 receiver. |
| 782 618 | **GSW966** | **TS/GS12 GPS Galileo License.**<br>License key for the TS11/TS15 total stations which enables use of Galileo with a GS12 receiver. |
| 782 620 | **GSW968** | **TS/GS12 Raw Data Logging License.**<br>License key for the TS11/TS15 total stations which enables logging of Leica MDB raw data with a GS12 receiver. |
| 782 621 | **GSW969** | **TS/GS12 RINEX Logging License.**<br>License key for the TS11/TS15 total stations which enables logging of RINEX raw data with a GS12 receiver. |
| 782 622 | **GSW970** | **TS/GS12 Network RTK Network License.**<br>License key for the TS11/TS15 total stations which enables the GS12 receiver to work within an RTK network. |
| 782 623 | **GSW971** | **TS/GS12 Leica Lite RTK License.**<br>License key for the TS11/TS15 total stations which enables the GS12 antenna to receive Leica Lite RTK messages. |

## 19.5 Power Supply



| | | |
|---|---|---|
| 733 269 | **GEB211** | Lithium-Ion battery, 7.4V/2.2Ah, rechargeable. To be used with CS10/CS15 field controller and GS09, GS12 or GS15 receivers. |
| 772 806 | **GEB212** | Lithium-Ion battery, 7.4V/2.6Ah, rechargeable. To be used with CS10/CS15 field controller and GS09, GS12 or GS15 receivers. |

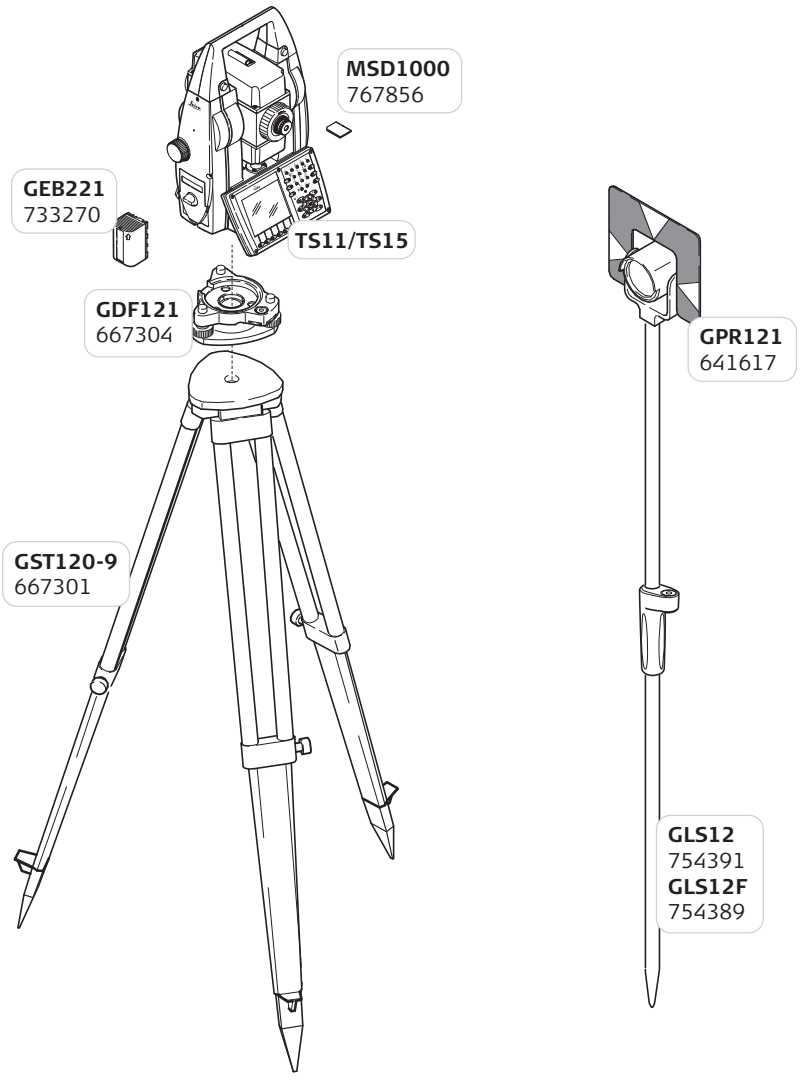
# Care Packages

## 20 Customer Care Packages

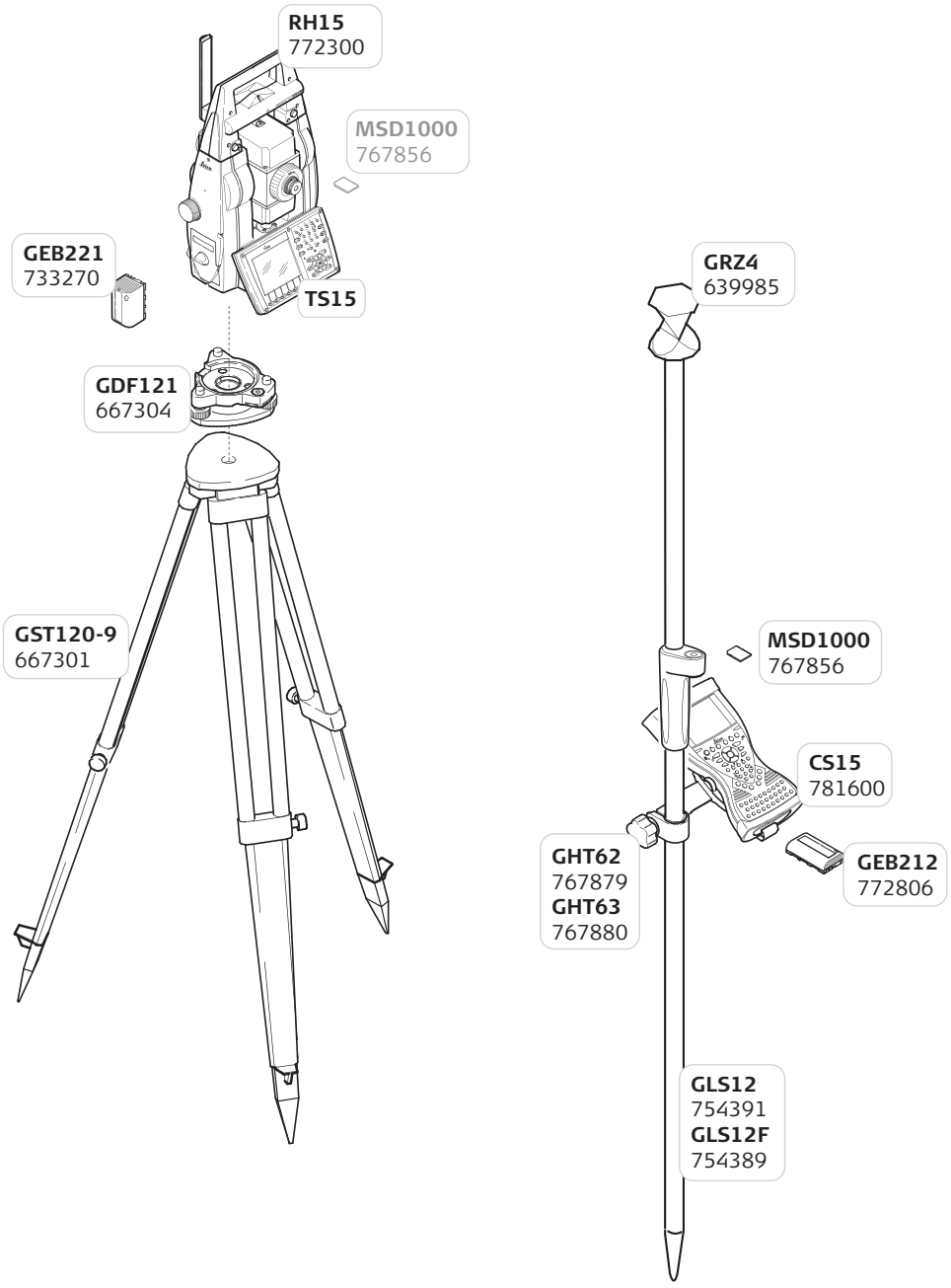
A wide selection of comprehensive Customer Care Packages (CCPs) is available bundling Hardware Maintenance, Software Maintenance, Customer Support and Extended Warranty.
For more information about the CCP offering in your country please contact your local Leica Geosystems organization or distribution partner.

# Suggested Equipment Setups

## 21 Conventional Surveying

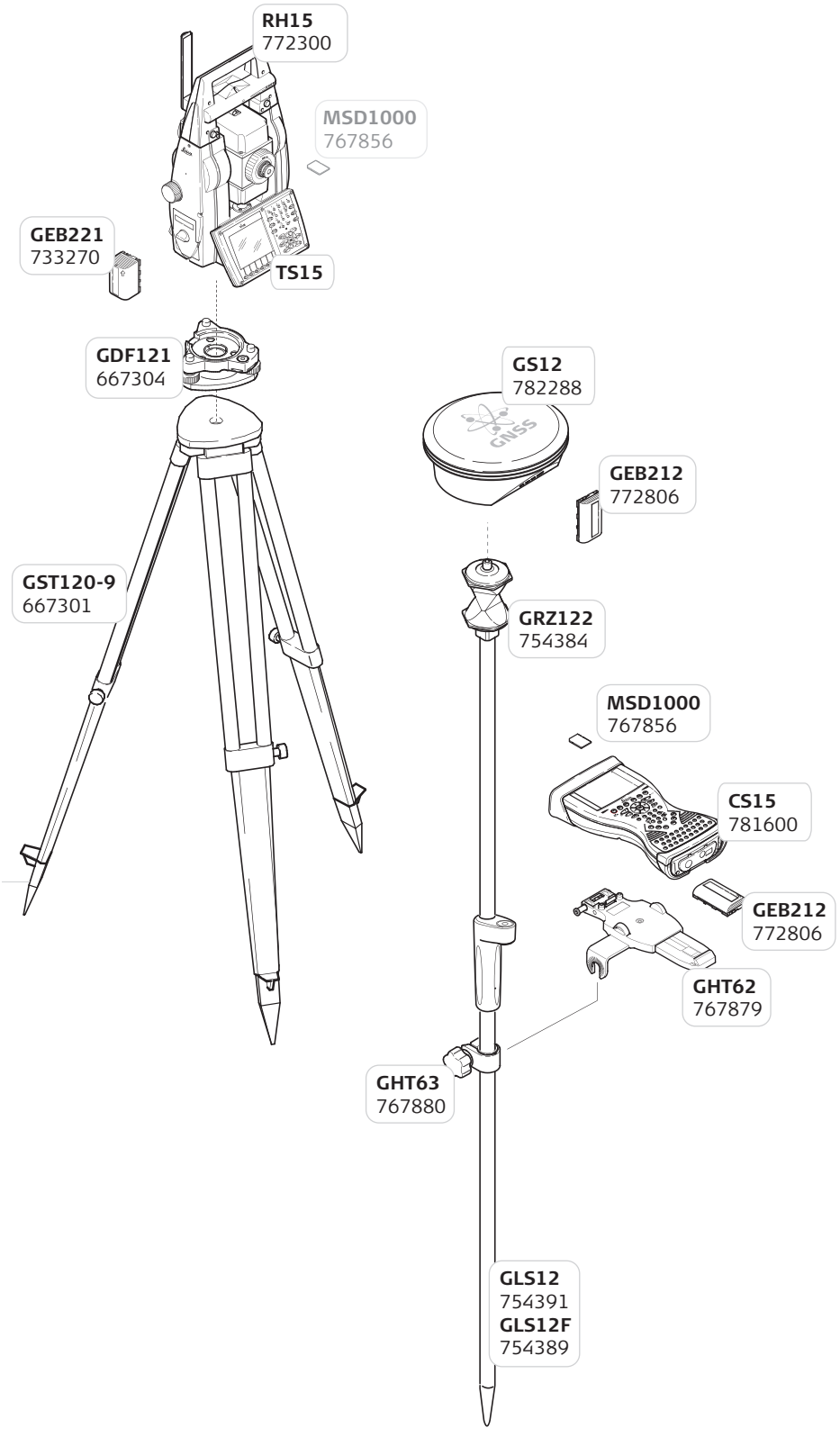


# 22 Robotic Surveying



# 23 SmartPole Surveying

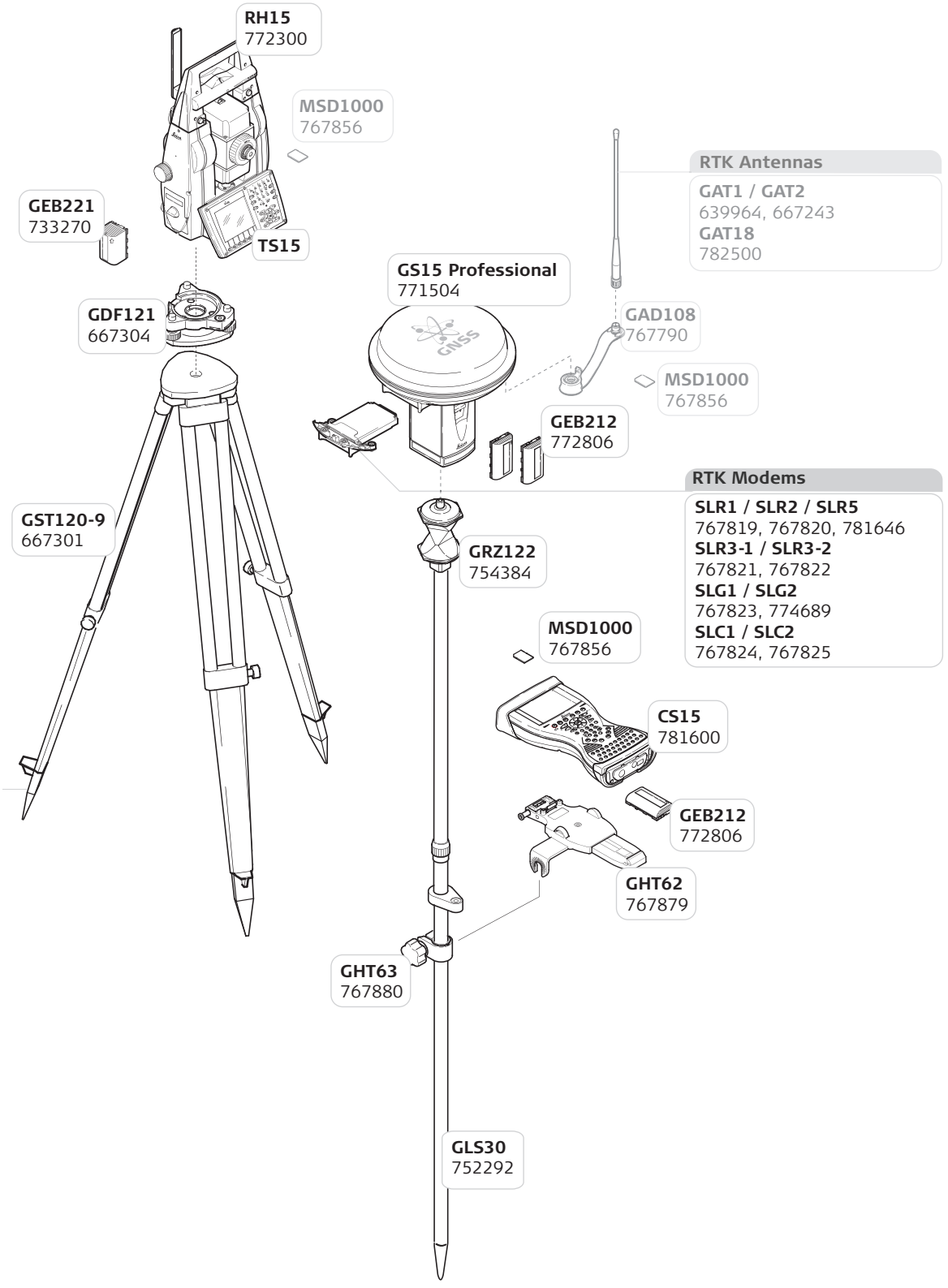
## 23.1 SmartPole using the GS12 GNSS Receiver




SmartPole setup with GS12 GNSS receiver requires a Bluetooth mobile phone or CS15 UMTS field controller in order to receive RTK correction data.

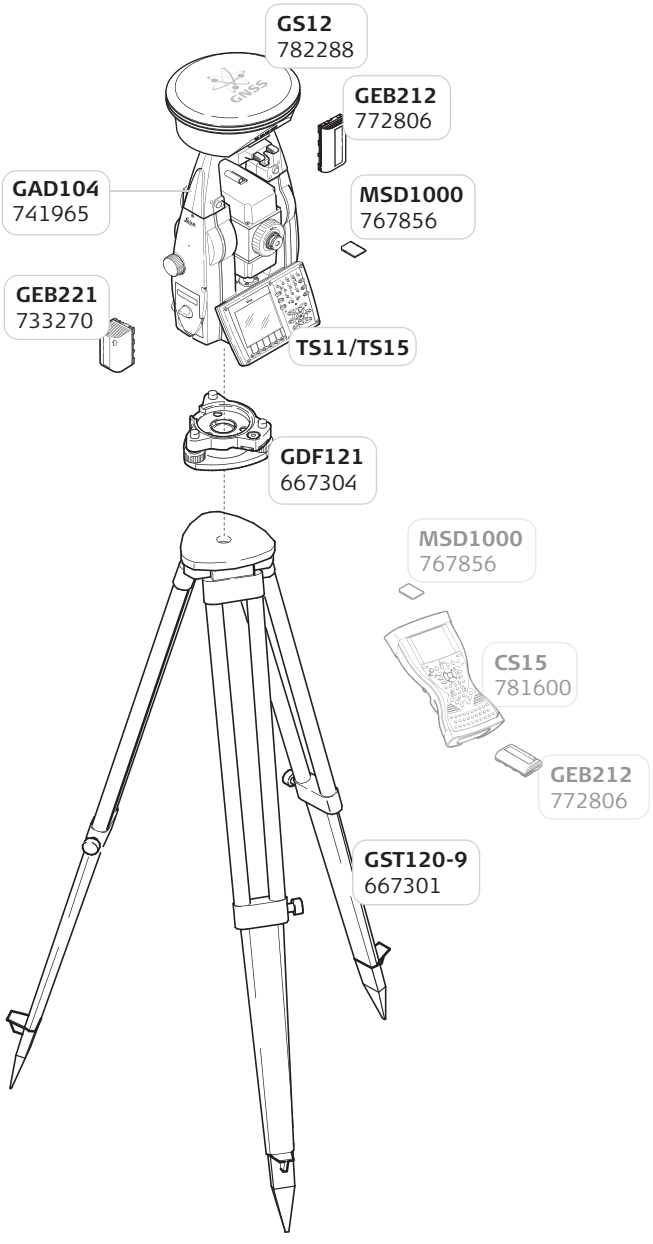
GFU RTK devices cannot be used for this SmartPole setup.

## 23.2 SmartPole using the GS15 GNSS Receiver



# 24 SmartStation

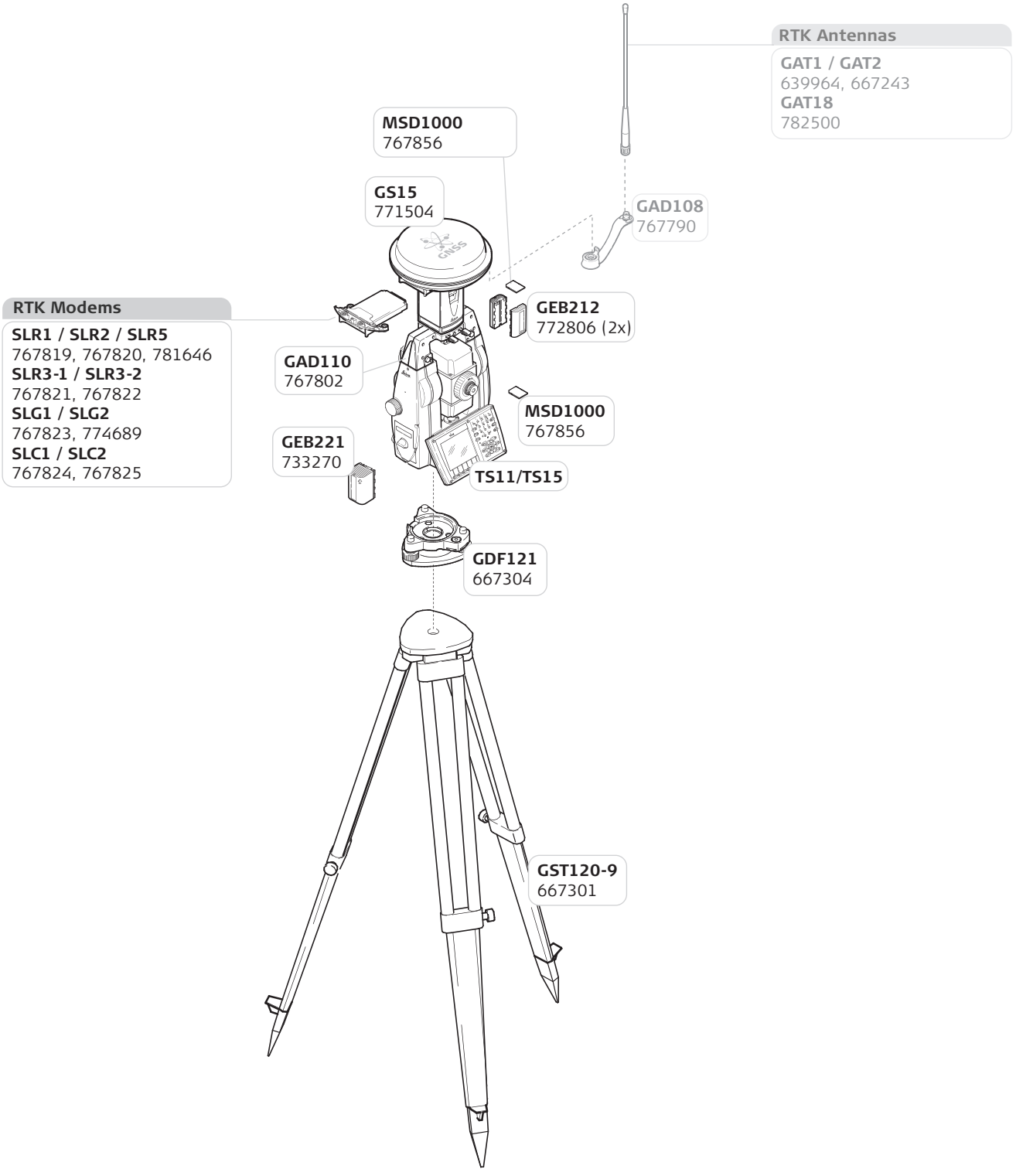
## 24.1 SmartStation using the GS12 GNSS Receiver




SmartStation setup with GS12 GNSS receiver requires a Bluetooth mobile phone or CS15 UMTS field controller in order to receive RTK correction data.

GFU RTK devices cannot be used for this SmartStation setup.

## 24.2 SmartStation using the GS15 GNSS Receiver



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